

What is claimed is:

1.

1                   An animal stall soil agitator comprising:

2                   a mounting plate assembly adapted to be pivotally connected to a  
3 tractor loader boom for pivotal movement about a loader boom axis that is  
4 horizontal and generally transverse to a direction of forward movement of the  
5 tractor loader;

6                   an elongated frame assembly with an inboard frame end attached to  
7 the mounting plate assembly and an outboard frame end that extends laterally  
8 outwardly to one side of the tractor loader boom;

9                   an elongated bar, with a bar outboard end and a bar inboard end,  
10 journaled on the elongated frame assembly for rotation about a horizontal  
11 elongated bar axis, and wherein the elongated bar extends laterally outward to  
12 one side of the mounting plate assembly;

13                  a plurality of soil agitator bars secured to the elongated bar and  
14 spaced apart along the horizontal elongated bar axis and wherein, the soil  
15 agitator bars are rigid members that extend radially outward from the horizontal  
16 elongated bar axis and at least some of the soil agitator bars are orientated to  
17 minimize displacement of soil; and

18                  a reversible hydraulic motor mounted on the elongated frame  
19 assembly and connected to the bar inboard end of the elongated bar to selectively  
20 rotate the elongated bar and the plurality of soil agitator bars in one direction or  
21 another and agitate soil.

**2.**

1           An animal stall soil agitator, as set forth in claim 1, wherein the  
2 inboard frame end of the elongated frame assembly is pivotally attached to the  
3 mounting plate assembly for pivotal movement about a generally vertical axis  
4 between a working position with the outboard frame end at one side of the  
5 mounting plate assembly, and a transport position with the outboard frame end  
6 forward of the mounting plate assembly.

**3.**

1           An animal stall soil agitator, as set forth in claim 2, including a  
2 locking assembly for holding the elongated frame assembly in the working  
3 position.

**4.**

1           An animal stall soil agitator, as set forth in claim 1, wherein the  
2 elongated bar journaled on the elongated frame assembly includes a square pipe.

**5.**

1           An animal stall soil agitator, as set forth in claim 4, wherein the  
2 plurality of soil agitator bars are welded to the square pipe.

**6.**

1           An animal stall soil agitator, as set forth in claim 1, wherein the  
2 plurality of soil agitator bars are welded to the elongated bar.

**7.**

1                   An animal stall soil agitator, as set forth in claim 1, wherein the  
2 elongated frame assembly includes a front horizontal member, a rear horizontal  
3 member that is parallel to and spaced from the front horizontal member, and a  
4 plurality of spacers each of which is connected to the front horizontal member and  
5 the rear horizontal member.

**8.**

1                   An animal stall soil agitator, as set forth in claim 7, wherein the  
2 elongated bar is journaled on two of the plurality of spacers of the elongated frame  
3 assembly for rotation about the horizontal elongated bar axis.

**9.**

1                   An animal stall soil agitator, as set forth in claim 8, wherein the  
2 horizontal elongated bar axis is parallel to the front horizontal member of the  
3 elongated frame assembly.

**10.**

1                   An animal stall soil agitator, as set forth in claim 1, wherein the  
2 reversible hydraulic motor is connected to a coupler assembly and the coupler  
3 assembly transmit torque to the bar inboard end of the elongated bar.

11.

1                   An animal stall soil agitator comprising:

2                   a mounting plate assembly adapted to be pivotally connected to a  
3 tractor loader boom for pivotal movement about a loader boom axis that is  
4 horizontal and generally transverse to a direction of forward movement of a tractor  
5 loader;

6                   an elongated frame assembly including a front horizontal member, a  
7 rear horizontal member that is parallel to and spaced from the front horizontal  
8 member, a plurality of spacers each of which is connected to the front horizontal  
9 member and the rear horizontal member, an outboard frame end and an inboard  
10 frame end, and wherein the inboard frame end of the elongated frame assembly is  
11 pivotally attached to the mounting plate assembly for pivotal movement about a  
12 generally vertical axis between a working position, with the outboard frame end at  
13 one side of the mounting plate assembly, and a transport position with the  
14 outboard frame end forward of the mounting plate assembly;

15                  a locking assembly interconnecting the inboard frame end of the  
16 elongated frame assembly and the mounting plate assembly to lock the elongated  
17 frame assembly in the working position;

18                  an elongated bar with a bar outboard end and a bar inboard end  
19 journaled on two of the plurality of spacers of the elongated frame assembly for  
20 rotation about a horizontal elongated bar axis and wherein the elongated bar  
21 includes a square pipe;

22                  a plurality of rigid soil agitator bars welded to the square pipe,  
23 spaced apart along the horizontal elongated bar axis and extending radially

24 outward from the horizontal elongated bar axis and wherein at least some of the  
25 plurality rigid soil agitator bars are oriented to minimize displacement of soil;  
26 a reversible hydraulic motor mounted on one of the plurality of  
27 spacers of the elongated frame assembly and connected to the bar inboard end of  
28 the elongated bar through a coupler assembly to selectively rotate the elongated  
29 bar and the plurality of rigid soil agitator bars in one direction or another direction  
30 and agitate soil.

## 12.

1 An animal stall soil agitator, as set forth in claim 11, including a  
2 shield attached to the front horizontal member and the rear horizontal member of  
3 the elongated frame assembly to catch soil thrown upward by the plurality of rigid  
4 soil agitator bars on the elongated bar.

## 13.

1 A method of agitating a sand floor, of a stall area of a livestock barn  
2 with stall dividers attached to a wall at one side of the stall area, employing a stall  
3 floor agitator assembly pivotally attached to a loader boom of a tractor loader for  
4 pivotal movement about a loader boom axis comprising:

5 moving the tractor loader into the livestock barn and into a starting  
6 position spaced from the wall;

7 pivoting an elongated frame assembly about a vertical axis from a  
8 transport position to a working position in which an elongated bar journaled on the  
9 elongated frame assembly for rotation about a horizontal elongated bar axis

10 extends laterally to one side of the tractor and a bar outboard end of the elongated  
11 bar is adjacent to the wall at one side of the stall area;  
12 locking the elongated frame assembly in the working position;  
13 lowering the loader boom until a plurality of flat sand agitator bars  
14 secured to the elongated bar penetrate into the sand floor;  
15 pivoting the stall floor agitator assembly about the loader boom axis  
16 to adjust the position the elongated frame assembly relative to the sand floor;  
17 supplying oil to a reversible hydraulic motor to rotate the elongated  
18 bar about the horizontal bar axis in a selected direction;  
19 moving the tractor loader in a direction parallel to the wall; and  
20 agitating the sand with the plurality of sand agitator bars as the  
21 tractor loader moves parallel to the wall.